



Marine Survey Activity Report 2012-13



SPC
Secretariat
of the Pacific
Community

Applied Geoscience and Technology Division (SOPAC)



Jens Krüger, Team Leader, Oceanography
Salesh Kumar, Hydrographic Surveyor

SPC-SOPAC SURVEY EQUIPMENTS



Survey Equipment Category	Details
Single beam echosounder	<ul style="list-style-type: none"> • Echotrac CVM with 200kHz transducer
Multibeam echosounder	<ul style="list-style-type: none"> • Reson SeaBat 8160, 50kHz • R2Sonic 2024, 200kHz to 400kHz
Motion sensors	<ul style="list-style-type: none"> • TSS DMS2-05 (downgraded to DMS-25) • VRU motion sensor
Heading	<ul style="list-style-type: none"> • Surveyor gyro • SCAN 2000 gyro
Conductivity, temperature, depth sensors	<ul style="list-style-type: none"> • Seabird SBE 19-03, 600m • Seabird SBE plus, 3500m • Seabird SBE 19-01, 1024m
Tide gauge	<ul style="list-style-type: none"> • RBR TWR-2050 submersible pressure sensor • Interocean WTF 904 submersible sensor
Positioning	<ul style="list-style-type: none"> • Trimble RTK R10 • Thales Aquarius LRK GPS • Trimble DSM12 GPs • Trimble 5800 • Trimble SPS 852 with Fugro G2 license • MarineSTAR 9200 G2-H for horizontal positioning and heading with Fugro G2 license
Software	<ul style="list-style-type: none"> • Hypack • Surfer • Fledermaus • AutoCAD • Trimble Business Centre

2012-13 Survey Locations



Fiji:

- Naduri
- Malau
- Valanga bay
- Sigatoka
- Coral coast
- Ovalau

Kiribati:

- Tarawa

Niue

Papua New Guinea

- Keita

SPC-SOPAC MARINE SURVEY ACTIVITIES 2012-



Date	Location	Activity
October 2011	Naduri, Vanua Levu, Fiji	New wharf site survey-multibeam and single channel seismic includes survey of north passage past Kioa Island (cf. Admiralty Chart 749)
October 2011	Malau port Vanua Levu, Fiji	Investigate possible expansion of FFI jetty. Work included multibeam and single channel seismic
October 2011	Valaga bay Vanua Levu, Fiji	New wharf site investigation. Multibeam and single channel seismic for geotechnical survey
May 2012	Buresala Jetty, Ovalau, Fiji	Post dredging survey of wharf (cf. Admiralty chart 488)
October 2012	Tagaqe, coral coast, Vitilevu, Fiji	Wave energy site investigation. Multibeam, seismic and drilling. Investigation for geotechnical feasibility works
October 2012	Sigatoka River offshore, Vitilevu, Fiji	Mining resource survey. Multibeam and single channel seismic
March 2013	Tarawa Atoll, Kiribati.	UXO SURVEY. Multibeam and magnetic survey. Resource site for dredging aggregates and locating possible UXO and ERW's
June 2013	Niue	New wharf expansion investigation. Multibeam, geotechnical drilling and modelling of proposed structure
October 2013	Keita Bouganville, Papua new Guinea	Cable route survey from mission point to Pokpok island.

SOPAC MBES and SBES SURVEY PLATFORMS (Vessels of Opportunity)



R2Sonic 2024 MBES, Survey Fiji

SOPAC MBES and SBES SURVEY PLATFORMS (Vessels of Opportunity)



Yonki dam, PNG



Keita, PNG



Tarawa, Kiribati



Niue

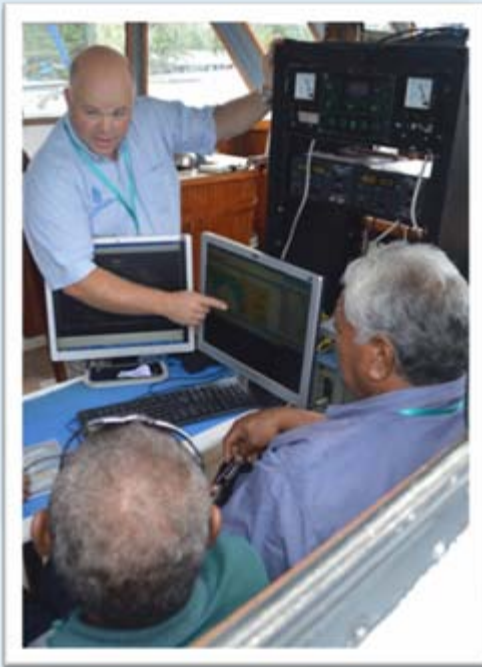


IHO/IMO Regional Training Course on Hydrography and Nautical Charting
24 September to 05 October, 2013. Suva, Fiji

Participants



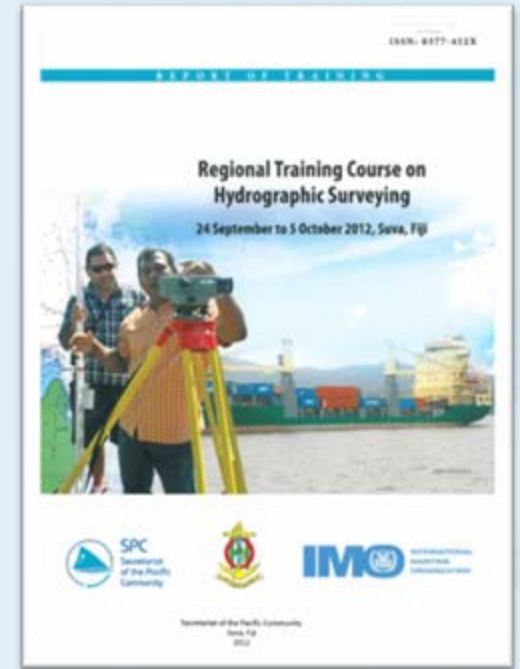
- Cook Islands
- Federated States of Micronesia
- Fiji
- Kiribati
- Burma
- Niue
- Palau
- Samoa
- Solomon Islands
- Tonga
- Tuvalu
- Vanuatu
- SPC-SOPAC



David Parker UKHO



Sam Harper UKHO



SOPAC SURVEYS



BIVA (Bonriki Inundation Vulnerability Assessment) Project



Kiribati

Robert Smith
Marine Geophysicist

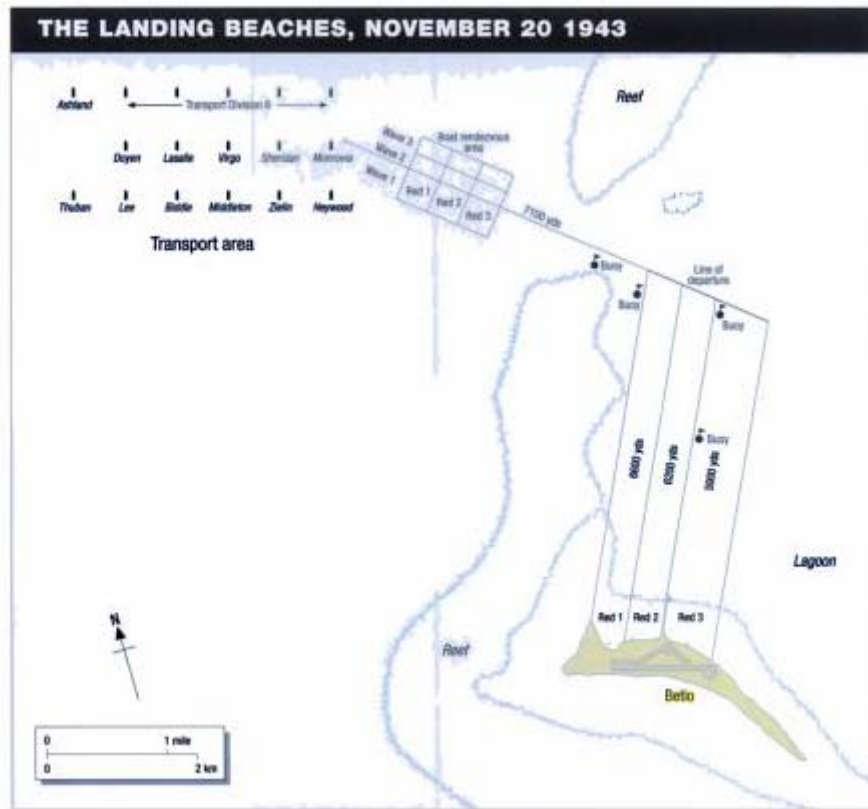


Tarawa Atoll Lagoon-UXO Survey March - 2013

The Government of Kiribati - EU funded ESAT (Environmentally Safe Aggregates for Tarawa) project implemented by SOPAC. The ESAT Project aims to protect the vulnerable beaches of South Tarawa from damage caused by aggregate mining by providing an alternative supply of building sand and gravel through environmentally safe lagoon dredging.



The Amphibious Assault



<http://cdn08.usni.org/sites/default/files/imagecache/story-large/stories/7C086A3CD10C467D9C4CA2861DDEF563.jpg>

Source from Tarawa 1943: The turning of the tide
By Derrick Wright

U.S. Marine Corps History Division - The LVT assault waves cross the Line of Departure at 0832 on D-day. Only eight of the 87 amtracs would be lost to enemy fire during the vehicles' subsequent 40- to 50-minute run to the island.

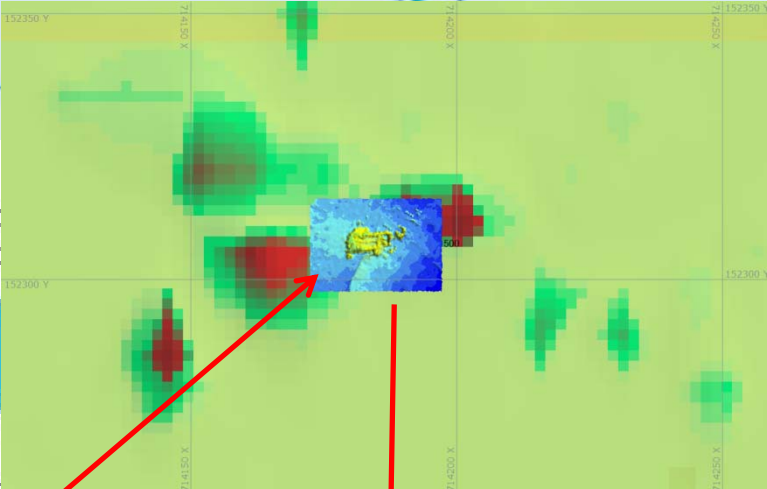
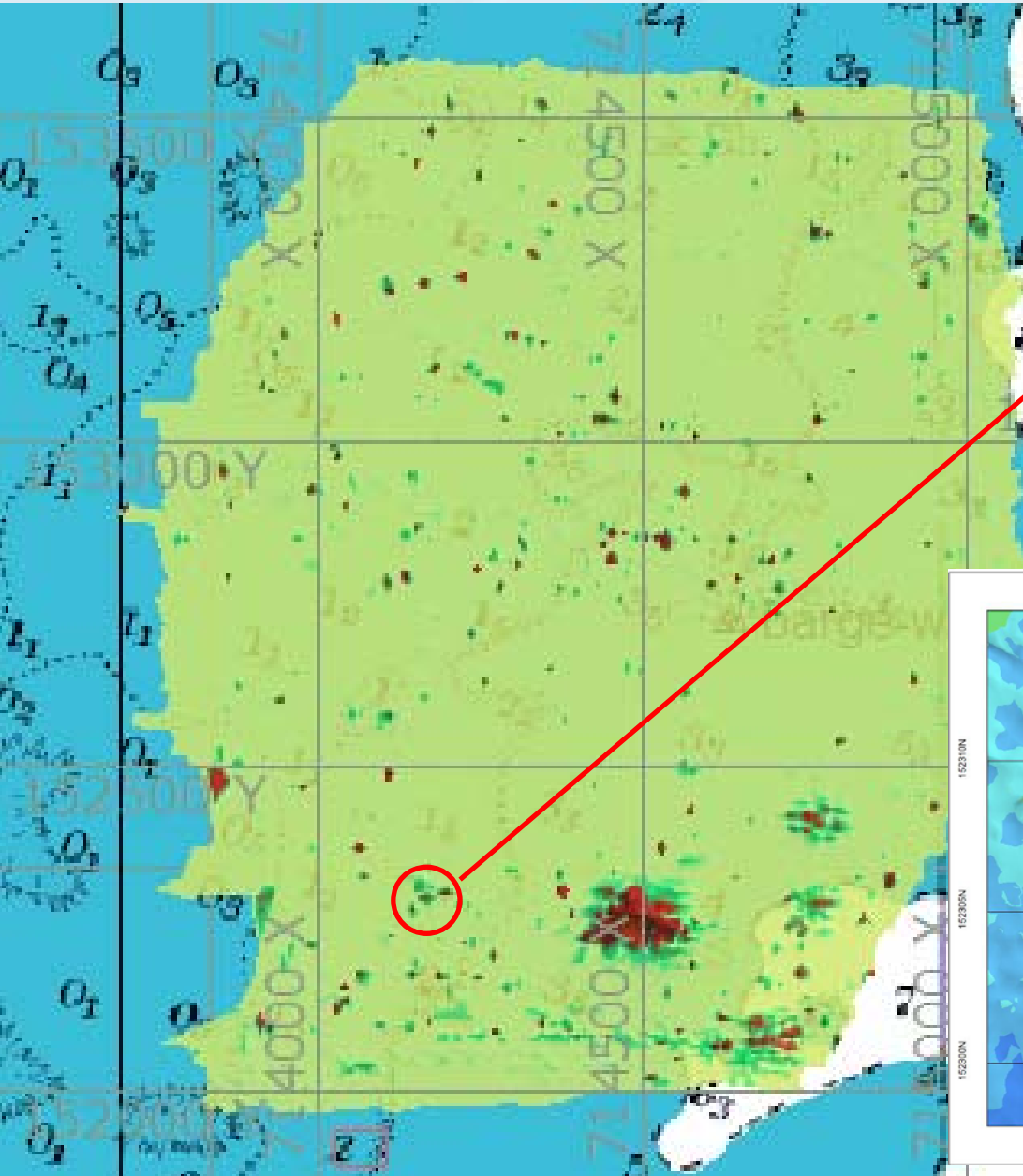
Combined bombardment from 3 battleships, 6 cruises, 9 destroyers lasted 2.5 hours and delivered 6 million pounds of explosives towards Betio. The torrent of shells poured onto the island with an almost flat trajectory – like stones skipping across a pond many bouncing into the ocean (Gregg, 1984)



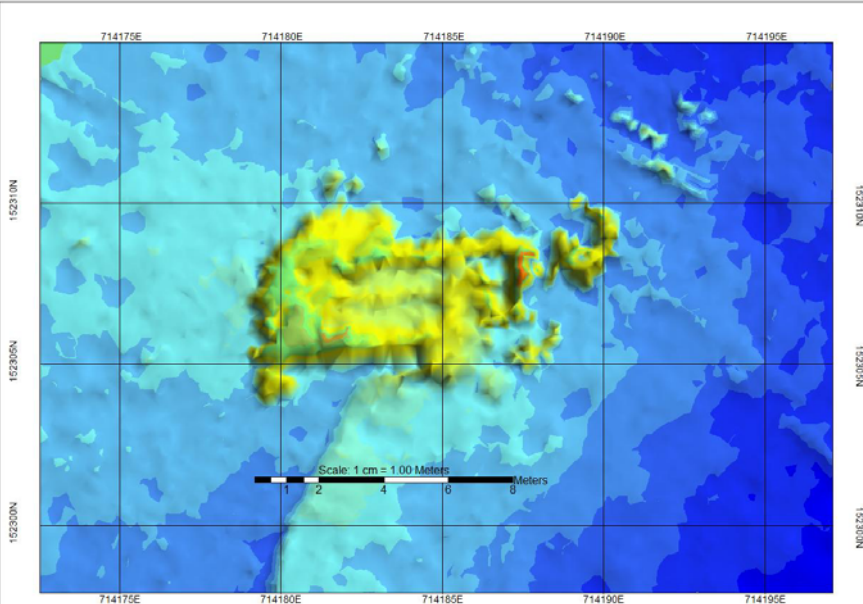
Amphibious track vehicle known as an amtrac or more specifically a LVT, Landing Vehicle Tracked. From a WWII data base www.ww2db.com of the 125 vehicles used in the assault only 35 remained operational after day 1. In the book "Tarawa" by Gregg Charles . T. some 23 of these were lost on the first day eight did not make the landing and 15 where sunk in deep water after landing

Of the 125 amtracs ,35 sank at sea, 26 sank on the reef, 9 burned on the beach and 2 blown up by mines (Gregg, 1984)

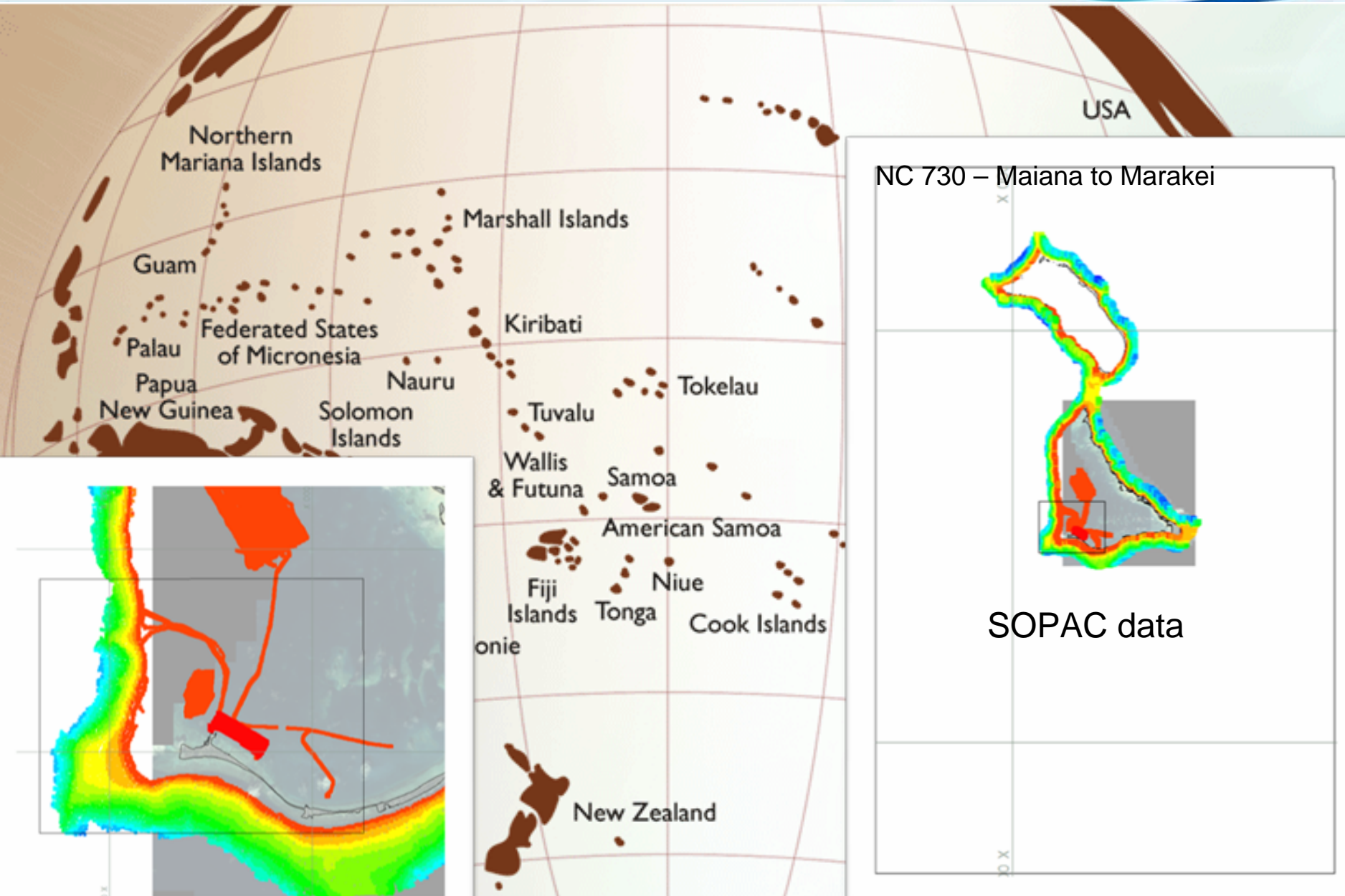
Magnetic Anomaly Map



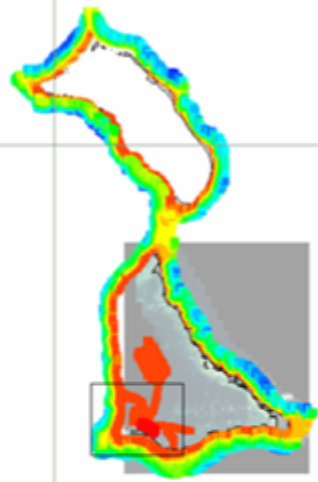
Multibeam xyz visualization of wreck and surrounding area



Proposal for charting/updating of Kiribati charts - UKHO



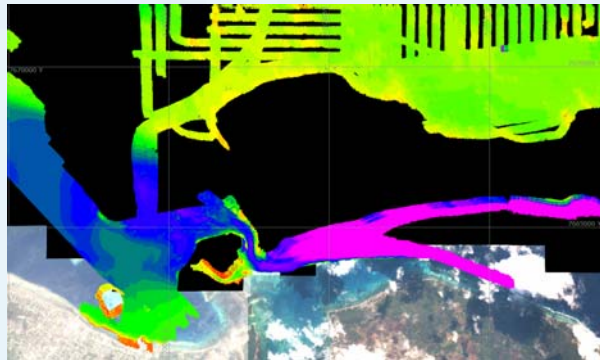
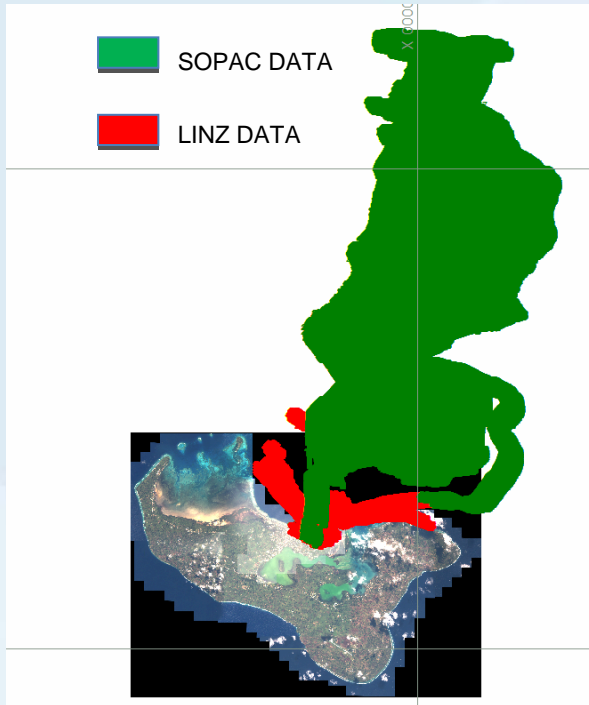
NC 730 – Maiana to Marakei



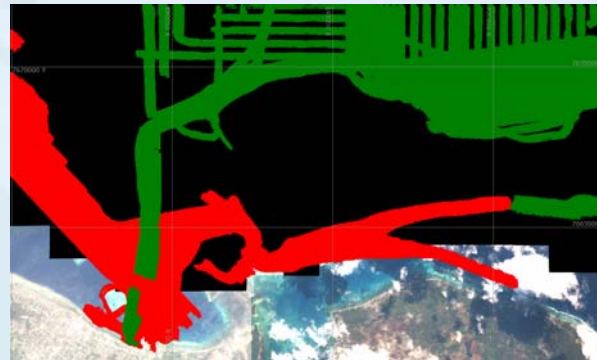
SOPAC data

NC 729A Betio including Betio Achorage

Action 10.4 - Compare LINZ survey data with the SOPAC Data (2011) acquired in Tongatapu, Tonga



Coloured by depth



Coloured by file

Statistical Analysis

Mean distance b/w soundings = 1.90m

Mean depth difference = 0.38m

Standard Deviation = 0.15

85% of sounding lies with \pm

1 standard deviation



TANKIO TUMAS

Multibeam bathymetry of Majuro lagoon,
Marshall Islands, SPC-SOPAC

